

**Notice of Allowability**

Application No.

10/671,224

Examiner

Michael J. Feely

Applicant(s)

BACK ET AL.

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1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to filing on 9/24/03.
2. ☒ The allowed claim(s) is/are 1-24.
3. ☐ The drawings filed on \_\_\_\_\_ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 0903
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

*In the Specification:*

Replace paragraph [001] with:

--The present application is a divisional of US Patent Application Serial No. 09/733,290 filed December 8, 2000, now issued as US Patent No. 6,653,436.--

*In the Claims:*

In line 3 of claim 17, replace "amount of at least than" with --amount of at least--.

*\*Note: the change to claim 17 is a correction of a minor grammatical error.*

### *Allowable Subject Matter*

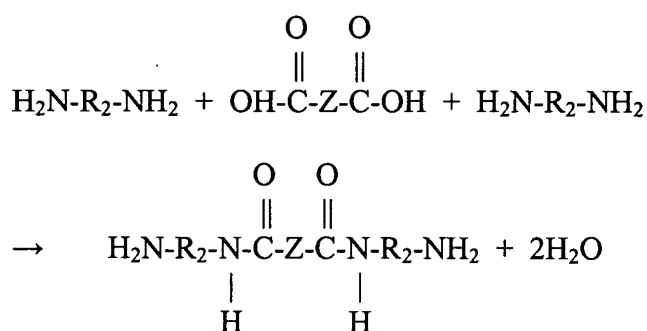
2. Claims 1-24 are allowed.

3. The following is an examiner's statement of reasons for allowance:

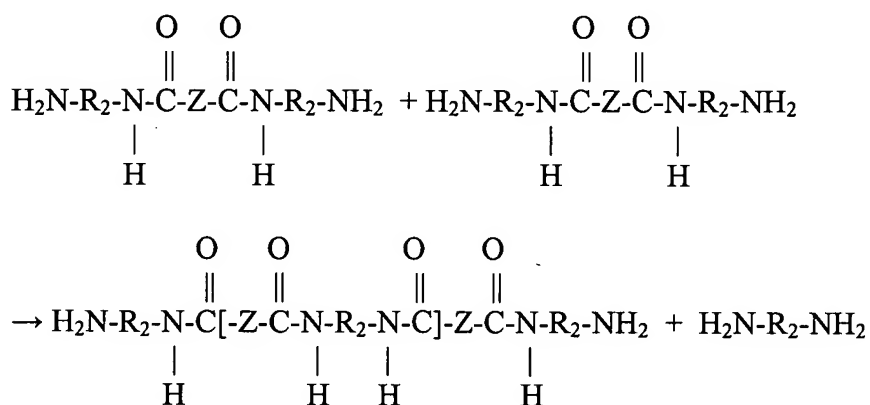
The instant invention is a reaction product of an epoxy resin and a specific amidoamine composition. The novelty lies in the amidoamine composition, which is formed by a two-step condensation process, wherein each step has distinct process conditions to remove water by-product (first step) and amine by-product (second step).

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- In the first step, amine compounds are reacted with polyoxyalkylene polyether polycarboxylic acid compounds to form amidoamine compounds, while stripping away water by-product:

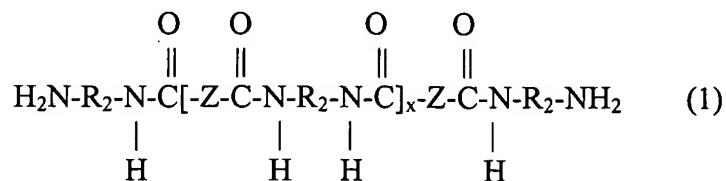


- In the second step, the amidoamine compounds are reacted with one another, while stripping away amine by-product:



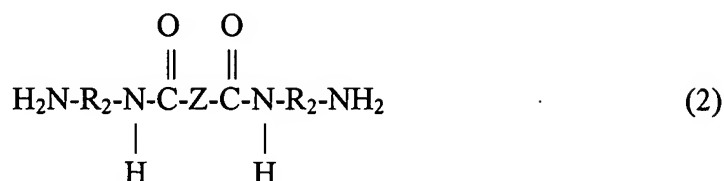
The oligomer produced in the second step may be produced in the first step. However, if present, it would only be there in minor amounts.

After performing the second step, the amidoamine composition contains a mixture of:



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and



This composition is then reacted with an epoxy compound, as detailed in independent claims 1 and 17.

The closest prior art is Marten et al. (US Pat. Nos. 5,319,004 & 5,017,675). In the '004 reference, Marten et al. disclose a hardener for epoxy resins, comprising the reaction products of:

- (A) polyamidoamines that were obtained by polycondensation of (a) dicarboxylic acids containing oxyalkylene groups, or their derivatives, with (b) polyamines containing at least two amino groups capable of undergoing condensation with (a);
- (B) polyamines containing at least two secondary amino groups; and
- (C) adducts of (c) polyepoxy compounds and (d) polyalkylene polyether polyols.

In the '675 reference, Marten et al. disclose a hardener for epoxy resins, comprising:

- (A) polyamidoamines that were obtained by polycondensation of (a) dicarboxylic acids containing oxyalkylene groups, or their derivatives, with (b) polyamines containing at least two amino groups capable of undergoing condensation with (a).

In each of these references, the amidoamine (A) is produced using a one step reaction process (*see Examples*) that would correspond to the first step used in the instant invention. As mentioned above, this one-step process would have inherently produced minor amounts of the oligomeric structure (1) and mostly the amidoamine of structure (2). This implies some inherent overlap with the instant invention; however, each of the independent claims includes limitations that distinguish the claimed invention from the prior art.

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**Claim 1**, includes the following limitation: “wherein the amidoamine composition comprises the reaction product of primary polyamine compounds with polyoxyalkylene polyether polycarboxylic acid compounds at a corresponding equivalent weight ratio of at least 4.0: 1 *under oligomeric reaction conditions effective to increase the amine nitrogen equivalent weight of the amidoamine composition by at least 10% over the average acid equivalent weight of the polyoxyalkylene polyether polyacid composition.*” This increase measurement is defined in paragraphs 050-051, 111-112, and 122-123 of the Specification. The acid equivalent weight is measured after the first reaction step is completed, and the amine equivalent weight is measured after the second reaction step is completed (with amine stripping). This measurement is an indicator of the extent of the oligomer-forming reaction step 2 and the amount of amine that is stripped away. The amidoamines of the prior art do not undergo this reaction step. At most they contain minor amounts of oligomer; hence, this limitation distinguishes the instant invention from the prior art. Furthermore, Applicants show criticality for this property – *see paragraphs 110-130.*

**Claim 17**, includes the following limitation: “an amidoamine composition comprising oligomeric amidoamine compounds *in an amount of at least 20 wt.% to 80 wt% based on weight of amidoamine composition.*” This limitation is also an indicator of the extent of the oligomer-forming reaction step 2. The amidoamines of the prior art do not undergo this reaction step. At most they contain minor amounts of oligomer; hence, this limitation distinguishes the instant invention from the prior art. Furthermore, Applicants show criticality for this property – *see paragraphs 110-130.*

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Speranza et al. (US Pat. No. 5,128,441) is also similar to the instant invention; however, their use of oxyalkylene containing polyamines and non-oxyalkylene containing dicarboxylic acids yield a chemical structure different from the chemical structure set forth in the instant invention.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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***Communication***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Feely whose telephone number is 571-272-1086. The examiner can normally be reached on M-F 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Michael J. Feely  
Primary Examiner  
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May 31, 2005